UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/825,800	04/04/2001	Eric J. Horvitz	MS150903.1	2652

27195   7590   12/03/2003

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ART UNIT	PAPER NUMBER
2172	

DATE MAILED: 12/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	**Applicant(s)**
Office Action Summary	09/825,800	HORVITZ ET AL.
	Examiner	**Art Unit**	
	Fred I. Ehichioya	2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>*16 September 2003*</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>*1 - 66*</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>*1 - 66*</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

4) ☐ Interview Summary (PTO-413) Paper No(s). _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Response to communication filed on September 16, 2003.

2. Claims 1 – 66 are pending in this office action.

3. Applicants amend claims 1, 2, 3, 5, 6, 7, 8, 9, 10, 12, 14, 16, 17, and 18.

4. Applicants add new claims 58 - 66

5. Applicants argue:

(a) Neither Barrett et al. nor Payton, alone or in combination, teach or suggest

logging ... as a basis for storing information as in applicants' invention as recited in

independent claim 1. (Page 15, Para 1).

(b) There is no teaching or suggestion in Barrett et al. of locally storing . . . when

selections were previously viewed/accessed as in the claimed invention (Page 15,

Para 3).

(c) Neither Barrett nor Macrae teach or suggest a utility system . . . as recited in

independent claim 53 (Page 17, Para 4).

Regarding argument (a), examiner disagrees with the applicants. Payton teaches

logging information locally as disclosed in columns 2, line 67 thru column 3 "Each

subscriber has a local server that downloads recommended and specifically

requested items and stores them in a local storage device"; Payton teaches

storage/log previously view information as disclosed in column 5, lines 6 – 20 "The

list may comprise only items that a particular subscriber has never previously

requested or may contain a mix of the highest recommended items and a few previously viewed items that the subscriber rated very highly, and is thus likely to request again".

The use of patents as reference is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain." *In re Heck, 699 F.2d 1331, 1332 – 33, 216 USPQ 1038, 1039* (MPEP 2123).

Regarding argument (b), examiner disagrees with the applicants. Barrett teaches inference system and disclosed in column 4, lines 1 – 4 "The viewer profiles may, for example, be stored in a viewer profile database. The collaborative information is used to augment the viewer profile by inferring program choices based on similarities with other users". Barrett teaches assign values to selection as disclosed in column 4, lines 60 – 67 "The second column of the viewer profile of FIG. 3 includes a number that represents a relative level of interest of the viewer in the item represented by the key word for a particular row. In the example of FIG. 3, the level of interest is a number between 0 and 1. For example, the level of interest listed for the topic "Science Fiction" is 0.678".

Regarding argument (c), examiner disagrees with the applicants. Barrett teaches a utility system operable to monitor program selection as disclosed in column 4, lines 23 – 36 "At block 240, the viewer's actual program choices are monitored. These

choices are used to update the viewer's viewer profile at block 250" and Macrae et

al. teaches "high values are assigned . . ., which are quickly decayed .... received

by the program delivery system" as disclosed in column 12, lines 25 - 43 "the set-top

box 30 maintains a running record of the amount of time the user views the various

channels over a selected period of time, and orders the channels based on a

viewing time rating that is a function of actual viewing time over a current viewing

period, for example, the previous day or week, and further based a decaying

function of viewing time for viewing periods before the current viewing period. The

set-top box 30 also can enable the ordering of other types of information, such as

news information, that it enables the television receiver 32 displays based on the

user's viewing habits. In that operation, each item of news information is associated

with one of a number of categories, and the set-top box 30 keeps track of the

classes of news information viewed by the user. In addition, the set-top box 30 will

order the items of news information based on the ages of the items and a priority

value that is assigned by system 5". Test for combining references is not what

individual references themselves suggest but rather what the combination of

disclosures taken as a whole would suggest to one of ordinary skill in the art. In re

McLaughlin, 170 USPQ 209 (CCPA 1971). It would have been obvious to one of

ordinary skills at the time of the invention that the combination of the teaching of

Macrae with the teaching of Barrett fairly suggest a cache loading . . . received by

the program delivery system as recited in claim 53.

6. Applicant's arguments with respect to claims 1 – 66 have been considered but are

moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the

obligation under 37 CFR 1.56 to point out the inventor and invention dates of each

claim that was not commonly owned at the time a later invention was made in order

for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35

U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1 – 9, 14, 15, 16, 19, 22, 23, 24, 25, 26, 27, 28, 32, 33, 34, 35 are rejected

under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,005,597 issued to

David S. Barrett et al (hereafter "Barrett") in view of U.S. Patent 5,790,935 issued to

David W. Payton (hereinafter "Payton").

Regarding claim 1, Barrett teaches a system for storing information locally that is received from an information delivery system for viewing at a local system, comprising;

an inference system that trained by the log selections of previously viewed information and that assigns values to selections in a recommendation list based on the previously viewed information (see column 4, lines 1 – 4; lines 60 – 65 and column 5, lines 17 – 18); and

a localstorage system that store selection information corresponding to the assigned values of the selections (see column 5, lines 51 – 61).

Barrett does not explicitly teach a database system that logs selections of previously viewed information at a local system that is received from an information delivery system.

However, Payton teaches a database system that logs selections of previously viewed information at a local system that is received from an information delivery system (see column 2, line 67 through column 3 lines 1 – 2 and column 5, lines 6 – 20).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett with the teaching of Payton wherein the viewing preferences of a viewer in a television program selection are monitored. These preferences of a viewer are used to create a dynamic viewer profile. Based on the viewer profile, available programs are sorted and presented to the viewer in descending order of predicted interest. The motivation being that the viewer can quickly find the program of greatest interest without having to tediously search through large numbers of available programs.

Regarding claim 2, Barrett teaches the inference system employs collaborative filtering techniques on a temporal history of the previously viewed information to assign values (see column 8, lines 46 – 55) to selections in the recommendation list from a higher probability to a lower probability that a riser of the system would prefer to view information corresponding to an available selection (see column 4, lines 60 – 67 and column 5, lines 1 – 4).

Regarding claim 3, Barrett teaches the previously viewed information is time stamped by event type and the inference system is based on a single collaborative filtering model adapted to be trained according to time intervals that the information has been viewed (see column 2, lines 54 – 59).

Regarding claim 4, Barrett teaches the inference system is based on a plurality of separate collaborative filtering models, each collaborative filtering model trained with the information from a particular time intervals of temporal history that have been viewed (see column 8, lines 46 – 63).

Regarding claim 5, Barrett teaches the viewed information is time stamped by event occurrence and the inference system is based on a single collaborative filtering model trained according to time intervals that the information has been viewed (see column 2, lines 54 – 59).

Regarding claim 6, Barrett teaches the inference system receives further

attributes of at least one system user and utilizes these attributes in assigning values to

selections in the recommendation list (see column 4, lines 60 – 65).

Regarding claim 7, Barrett teaches the inference system receives attributes of

other systems and utilizes these attributes during training of the inference system (see

column 8, lines 52 – 55).

Regarding claim 8, Barrett teaches the local storage system assigns sorting

values to the selections based on an initial assigned value of the selection divided by

the size of the selection (see column 10, lines 24 – 39).

Regarding claim 9, Barrett does not explicitly teach the local storage system

dynamically adjusts the value of the selections based on a set of cache retention

policies.

However, Payton teaches the local storage system dynamically adjusts the value

of the selections based on a set of cache retention policies (see column 6, lines 33 –

39).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine teaching of Barrett with the teaching of Payton wherein

the user manually adjust and assign value to the list. The rating is then sorted from

highest requested item to the lowest requested selection. The motivation being that the

least requested selection could easily be removed from the storage to create space for

new selections.

Regarding claim 14, Barrett does not explicitly teach a multimedia system that

stores information locally received from a program delivery system for viewing at a local

system, comprising; a cache loading system that receives a list of selections from a

program delivery system and store program selection information corresponding to the

list of selections in a local memory system; and a utility system that monitors program

selection information in the local memory system and communicate value information to

the cache loading system for removing information residing in the local memory system

in exchange for information having a higher value received by the program delivery

system.

However, Payton teaches a cache loading system that receives a list of

selections from a program delivery system and store program selection information

corresponding to the list of selections in a local memory system (see column 1, lines 9 -

14); and

a utility system that monitors program selection information in the local memory

system and communicate value information to the cache loading system for removing

information residing in the local memory system in exchange for information having a

higher value received by the program delivery system (see column 5, lines 21 – 45).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine teaching of Barrett with the teaching of Payton wherein

the selections are stored in a compressed format to improve storage efficiency. The selection may also be encrypted. The motivation being that while maintaining storage efficiency, unauthorized users are also prohibited as a result of the program selection encryption.

Regarding claim 15, Barrett teaches the program selection information being television content (see column 1, lines 7 – 8).

Regarding claim 16, Barrett teaches the local memory system comprising a first portion to define user defined selections to be stored, a second portion to define live show selection to be stored and a third portion to define general selections to be stored (see column 11, lines 44 – 61).

Regarding claim 19, Payton teaches the utility system dynamically adjusts the assigned values based on a cache retention policy (see column 6, lines 33 – 39).

Regarding claim 22, Barrett teaches the utility system comprising a time dependent utility model that dynamically adjusts the assigned values based on the time that the selection resides in the local memory system (see column 5, lines 41 – 57).

Regarding claim 23, Barrett teaches an inference system adapted to receive a reviewed program list from the program delivery system, provide a recommendation list

(see column 8, lines 46 – 55 and column 9, lines 30 – 33) and dynamically assign values to selections in the recommendation list based on previously viewed programs, wherein the cache loading system stores the program selection information corresponding to the assigned values of the selections in the local storage system (see column 5, lines 41 – 59).

Regarding claim 24, Barrett teaches the inference system employing collaborative filtering techniques on a temporal history of previously viewed programs (see column 8, lines 46 – 45) and the selectable program list to dynamically assign values to selections in a recommended program list from a higher probability to a lower probability (see column 5, lines 41 – 57) that a user of the system would prefer to view information corresponding to an available selection (see column 4, lines 60 – 67 and column 5, lines 1 – 4).

Regarding claim 25, Barrett teaches the viewed programs being time stamped by event type and the inference system being based on a single collaborative filtering model adapted to be trained according to time intervals that the information has been viewed (see column 2, lines 54 – 59).

Regarding claim 26, Barrett teaches the inference system being based on a plurality of separate collaborative filtering models, each collaborative filtering model

being trained with the information from a particular time interval of temporal history that

has been viewed (see column 8, lines 46 – 63).

Regarding claim 27, Barrett teaches the viewed programs being time stamped by

event occurrence and the inference system being based on a single collaborative

filtering model adapted to be trained according to time intervals that the information has

been viewed (see column 2, lines 54 – 59).

Regarding claim 28, Barrett teaches the inference system being further adapted

to receive further attributes of at least one user of the system and utilize these attributes

in assigning values to selections in the selectable program list (see column 4, lines 60 –

65).

Regarding claim 32, Barrett teaches a multimedia system adapted to store locally

information received from a program delivery system for viewing at a local system,

comprising:

multimedia program is being viewed until the entire multimedia program has

been downloaded (see column 11, lines 44 – 53).

Barrett does not explicitly teach a local system having a memory loading system

operable to determine a portion of a multimedia program, downloadable from a remote

source to the local system, to store locally based on a local viewing rate and a remote

transmission rate of the multimedia program; a storage system adapted to store a

portion of the multimedia program necessary for uninterrupted viewing of the multimedia

program; and a viewing system operable to retrieve the multimedia program from the

storage system for viewing, wherein a remaining portion of the multimedia program is

downloaded to the storage system while the multimedia program is being viewed until

the entire multimedia program has been downloaded.

However, Payton teaches a local system having a memory loading system

operable to determine a portion of a multimedia program, downloadable from a remote

source to the local system, to store locally based on a local viewing rate and a remote

transmission rate of the multimedia program (see column 5, lines 22 – 45);

a storage system adapted to store a portion of the multimedia program

necessary for uninterrupted viewing of the multimedia program (see column 5, lines 31

– 39 and column 8, lines 11 - 25); and

a viewing system operable to retrieve the multimedia program from the storage

system for viewing, wherein a remaining portion of the multimedia program is

downloaded to the storage system (see column 5, lines 37 – 43; column 6,lines 59

through column7, lines 1 - 12).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine teaching of Barrett with the teaching of Payton wherein

the receivers receive all the channels available to the user for simultaneous viewing and

download. The motivation being that two channels can be simultaneously displayed on

the television monitor thereby allowing the user to view two programs of interest at the

same time.

Regarding claim 33, Barrett teaches the storage information being adapted to

store portions of a plurality of downloadable selections based on a probability that a

system user would like to view a selection (see column 5, lines 1 – 10).

Regarding claim 34, Barrett teaches an inference system adapted to determine

the portions of downloadable selections to store in the storage system based on the

temporal history of previously viewed programs of the system (see column 3, lines 66 –

67 and column 4, lines 1 – 4).

Regarding claim 35, Barrett teaches the inference system employing

collaborative filtering techniques on a temporal history of previously viewed programs

(see column 8, lines 46 – 55) and a selectable downloadable program list to dynamically

assign values to selections in the selectable program list from a higher probability to a

lower probability that a user of the system would prefer to view information

corresponding to available selections (see column 4, lines 60 – 61 and column 5, lines 1

– 4).

9. Claims 37 – 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Barrett in view of U.S. Patent 6,233,734 issued to Douglas B. Macrae (hereinafter

"Macrae").

Regarding claim 37, Barrett teaches a method for determining user preferred

content to be stored in a local storage system having definite limits, the user preferred

content being received from an information delivery system for viewing at a local

system, comprising;

receiving a list of available selections (see column 2, lines 57 – 67 and column 4,

lines 11 – 22);

assigning a value to each of the available selections (see column 5, lines 16 –

29);

storing information relating to a corresponding selection in the local storage

system for the available selections based on value of the selection until the limits of the

local storage system is obtained (see column 5, lines 57 – 65);

dynamically adjusting the values of the available selections based on at least one

cache retention policy (see column 5, lines 41 – 57); and

Barrett does not explicitly teach removing information from the storage medium

as its value causes it to fall outside the limits of the storage medium.

However, Macrae teaches removing information from the storage medium as its

value causes it to fall outside the limits of the storage medium (see column 12, lines 45

– 50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett with the teaching of Macrae wherein old selections that not frequently used are removed from storage to create space for new selections. The list is sorted and stored in the memory. The motivation being that the least requested selection could easily be removed from the storage to create space for new selections and therefore cost effective.

Regarding claim 38, Barrett teaches the step of assigning values to available selections comprising employing collaborative filtering techniques on a temporal history of previously viewed information and the list of available selections to determine a higher probability to a lower probability that a system user would prefer to view information corresponding to an available selection (see column 4, lines 60 –67 and column 5, lines 1 – 4).

Regarding claim 39, Barrett teaches the step of assigning values to available selections further comprising considering attributes of at least one system user and utilizing these attributes in assigning values to selections in the available selection list (see column 4, lines 60 – 65).

Regarding claim 40, Barrett teaches the step of assigning values to available selections further comprising considering attributes of other systems and utilizing these attributes in providing global values to a list of available selections to a cluster of

systems based on the temporal viewing history of the systems of the cluster (see column 5, lines 41 – 64).

Regarding claim 41, Barrett teaches a step of determining an expected value density of each selection by dividing the value of the selection by the size of the selection for each selection stored in the local storage system (see column 4, lines 60 – 65 and column 7, lines 64 – 65).

Regarding claim 42, Barrett teaches the assigned values are dynamically adjusted based on the time that the selection resides in the local storage system (see column5, lines 41 – 47).

Barrett does not explicitly teach the at least one cache retention policy being a value aging rule set.

However, Macrae teaches the at least one cache retention policy being a value aging rule set (see column 12, lines 41 – 43).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett with the teaching of Macrae wherein the at least one cache retention policy being a value aging rule set such that the assigned values are dynamically adjusted based on the time that the selection resides in the local storage system. The list is sorted and stored in the new memory space. The motivation being that this is cost savings since the least requested selection could easily be removed from the storage to create space for new selections.

Regarding claim 43, Barrett teaches receiving new selections with assigned values and dynamically adjusting the location of the stored information and new information in the local storage system (see column 5, lines 41 – 47).

Barrett does not explicitly teach wherein information is aged out of the local storage system having lower values that falls outside the limits of the local storage system.

However, Macrae teaches information is aged out of the local storage system having lower values that falls outside the limits of the local storage system (see column 12, lines 41 – 50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett with the teaching of Macrae wherein the user manually adjust and assign value to the list. The list is then sorted and stored in the new memory space. The existing memory space is therefore selected for deleting and arranging of old selection. The motivation being that the least requested selection could easily be removed from the storage to create space for new selections.

Regarding claim 44, Barrett does not explicitly teach the at least one cache retention policy comprising a plurality of cache retention policies grouped by class types with different cache retention policies for aging the assigned values of selections within different class types.

However, Macrae teaches the at least one cache retention policy comprising a plurality of cache retention policies grouped by class types with different cache retention

policies for aging the assigned values of selections within different class types (see

column 12, lines 37 – 42 and lines 59 – 61).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine teaching of Barrett with the teaching of Macrae wherein

items of the same class are tagged with specific data type identifier. Each item of the

selection is associated with one of a number of categories. This grouping creates data

storage efficiency. The selection may also be encrypted. The motivation being that

while maintaining storage efficiency, unauthorized users are also prohibited as a result

of the program selection encryption.

Regarding claim 45, Barrett teaches the local storage system comprising a first

portion for storing user defined selections to be stored, a second portion for defining live

show selection to be stored and a third portion for defining general selections to be

stored (see column 11, lines 44 – 61).

Regarding claim 46, Macrae teaches recording programs that are currently in

progress at a given time period for selective viewing of at least one of the programs

from a beginning of a program in the second portion (see column 17, lines 56 – 67 and

column 18, lines 1 - 33).

Regarding claim 47, Barrett teaches a system for determining user preferred

content to be stored in a local storage system having definite limits, the user preferred

content being received from an information delivery system for viewing at a local

system, comprising;

means for receiving a list of available selections (see column 2, lines 57 – 67 and

column 4, lines 11 – 22);

means for assigning a value to each of the available selections (see column 5,

lines 16 – 29);

means for storing information relating to a corresponding selection in the local

storage system for the available selections based on the assigned value until the limits

of the local storage system is obtained (see column 5, lines 57 – 65);

means for dynamically adjusting the values of the available selections based on

a utility of the selection (see column 5, lines 41 – 47); and

Barrett does not explicitly teach means for removing information from the storage

medium as its value causes it to fall outside the limits of the storage medium.

However, Macrae teaches means for removing information from the storage

medium as its value causes it to fall outside the limits of the storage medium (see

column 12, lines 45 – 50).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine teaching of Barrett with the teaching of Macrae wherein

old selections that not frequently used are removed from storage to create space for

new selections. The list is sorted and stored in the memory. The motivation being that

the least requested selection could easily be removed from the storage to create space for new selections and therefore cost effective.

Regarding claim 48, Barrett teaches the means for assigning values to available selections being adapted to employ collaborative filtering techniques on a temporal history of previously viewed information (see column 8, lines 46 – 45) and the list of available selections to determine a higher probability to a lower probability that a system user would prefer to view information corresponding to an available selection (see column 4, lines 60 – 67 and column 5, lines 1 - 4).

Regarding claim 49, Barrett teaches means for determining an expected density value of selections by dividing the value of the selection by the size of the selection for each selection stored in the local storage system (see column 4, lines 60 – 65 and column 7, lines 64 – 65).

Regarding claim 50, Barrett teaches the utility of the selection being based on the time that the selection resides in the local storage system (see column 6, lines 4 – 7).

Regarding claim 51, Barrett teaches the available selections being television programs and the local system being a television (see column 1, lines 7 – 8).

Regarding claim 52, Barrett teaches means for recording television programs

that are currently in progress at a given time period for selective viewing of at least one

of the programs from a beginning point (see 6, lines 54 – 61).

Regarding claim 53, Barrett teaches a multimedia system adapted to store

television content locally that is received from a program delivery system for viewing at

a local system, comprising;

a cache loading system operable to receive a list of live show selections from a

program delivery system and store the live show selections corresponding to the list of

selections in a local memory system (see column 5, lines 57 – 61 and column 6, lines 7

– 29); and

a utility system operable to monitor program selection information in the local

memory system and communicate value information to the cache loading system

wherein high values are assigned to live show selections currently in progress (see

column 4, lines 23 – 26 and lines 60 – 65).

Barrett does not explicitly teach decayed after the show is no longer live wherein

live shows residing in the local memory having lower values are aged out in exchange

for live shows having a higher value received by the program delivery system.

However, Macrae teaches decayed after the show is no longer live wherein live

shows residing in the local memory having lower values are aged out in exchange for

live shows having a higher value received by the program delivery system (see column

12, lines 25 – 43).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett with the teaching of Macrae wherein high values are assigned to live show selections currently in progress, which are quickly decayed after the show is no longer live wherein live shows residing in the local memory having lower values are aged out in exchange for live shows The list is sorted and stored in the memory. The motivation being that the least requested selection could easily be removed from the storage to create space for new selections and therefore cost effective.

Regarding claim 54, Macrae teaches the cache loading system being further adapted to record live shows at any given time period for N number of shows employing N number of tuners, wherein the shows are selected based on the temporal history of previously viewed programs within a time interval (see column 6, lines 54 – 64).

Regarding claim 55, Macrae teaches the cache loading system being further adapted to record other shows that are not live with the live shows wherein the live shows are provided with higher initial values than the other shows and aged out quicker when no longer live than the other shows (see column 12, lines 40 – 47).

Regarding claim 56, Barrett teaches live show selections beginning at starting standard times, starting at one of the hour and half hour, are provided with higher initial values than the other shows and aged out quicker when no longer live than the other

shows, wherein the higher initial values are determined based on the likelihood that the

show will be viewed by a user of the system (see FIG. 1).

10. Claims 10 - 13, 17, 18, 20, 21, 29, 30, 31, 36 are rejected under 35 U.S.C. 103(a)

as being unpatentable over Barrett in view of Payton and further in view Macrae.

Regarding claim 10, Barrett teaches the local storage system receives new

selections with assigned values and dynamically adjusts the location of the stored

information and new information based on the new selections in the local storage

system (see column 5, lines 41 – 47).

Barrett or Payton does not explicitly teach wherein information is aged out of the

local storage system based on an expected value density of each selection.

However, Macrae teaches information is aged out of the local storage system

based on an expected value density of each selection (see column 12, lines 41 – 50).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine teaching of Barrett and Payton with the teaching of

Macrae wherein the user manually adjust and assign value to the list. The list is then

sorted and stored in the new memory space. The existing memory space is therefore

selected for deleting and arranging of old selection. The motivation being that the least

requested selection could easily be removed from the storage to create space for new

selections and therefore cost effective.

Regarding claim 11, Payton teaches aged out information is reduced in size and

quality by compressing the information and stored on the local storage system based on

the likelihood that the user will view the information prior to removing the information

from the local storage system (see column 4, lines 59 – 60 and column 5, lines 16 - 21).

Regarding claim 12, Barrett teaches the expected value density of a selection is

determined based on the assigned value of the selection divided by the size of the

selection (see column 4, lines 60 – 65) and column 7, lines 64 – 65).

Regarding claim 13, Macrae teaches selections are grouped by class types with

different cache retention policies for aging the assigned values of selections within

different class types (see column 12, lines 37 – 42 and lines 59 – 61).

Regarding claim 17, Barrett teaches the local storage system that receives new

selections with assigned values, the utility system dynamically adjusts the location of

the stored information and new information based on the new selections in the local

storage system (see column 5, lines 41 – 47)

Barrett or Payton does not explicitly teach wherein information is aged out of the

local storage system based on an expected value density of each selection.

However, Macrae teaches wherein information is aged out of the local storage

system based on an expected value density of each selection (see column 12, lines 41

– 50).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine teaching of Barrett and Payton with the teaching of

Macrae wherein the user manually adjust and assign value to the list. The list is then

sorted and stored in the new memory space. The existing memory space is therefore

selected for deleting and arranging of old selection. The motivation being that the least

requested selection could easily be removed from the storage to create space for new

selections.

Regarding claim 18, Barrett teaches the expected value density of a selection is

determined based on the assigned value of the selection divided by the size of the

selection (see column 4, lines 60 – 65 and column 7, lines 64 – 65).

Regarding claim 20, Barrett or Payton does not explicitly teach selections are

grouped by class types with different cache retention policies for aging the assigned

values of selections within different class types.

However, Macrae teaches selections are grouped by class types with different

cache retention policies for aging the assigned values of selections within different class

types (see column 12, lines 37 – 42 and lines 59 – 61).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine teaching of Barrett and Payton with the teaching of

Macrae wherein items of the same class are tagged with specific data type identifier.

Each item of the selection is associated with one of a number of categories. This

grouping creates data storage efficiency. The selection may also be encrypted. The motivation being that while maintaining storage efficiency, unauthorized users are also prohibited as a result of the program selection encryption.

Regarding claim 21, Barrett teaches the likelihood that a user will view a program based on the amount of time that has passed since the program has been recorded and not yet viewed (see column 4, lines 66 –67 and column 5, lines 1 – 4).

Barrett or Payton does not explicitly teach the cache retention policies of each class type is initially defined based on a default time-dependent decay function, the time-dependent decay function being continuously refined based on the likelihood that a user will view a program based on the amount of time that has passed since the program has been recorded and not yet viewed.

However, Macrae teaches the cache retention policies of each class type is initially defined based on a default time-dependent decay function, the time-dependent decay function being continuously refined (see column 12, lines 32 – 34).

Regarding claim 29, Barrett or Payton does not explicitly teach the cache loading system being further adapted to record live shows at any given time period for N number of shows employing N number of tuners, wherein the shows are selected based on the temporal history of previously viewed programs within a time interval covering the any given time period.

However, Macrae teaches the cache loading system being further adapted to record live shows at any given time period for N number of shows employing N number of tuners, wherein the shows are selected based on the temporal history of previously viewed programs within a time interval covering the any given time period (see column 6, lines 54 – 64).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett and Payton with the teaching of Macrae wherein selections are recorded by external device (see FIG. 3). The motivation being that the user can instantaneously view the recorded program or simply view the broadcast.

Regarding claim 30, Barrett or Payton does not explicitly teach the multimedia system residing on a television set top box.

However, Macrae teaches the multimedia system residing on a television set top box (see column 2, lines 21 – 22).

Regarding claim 31, Barrett or Payton does not explicitly teach the information system residing on a remote server communicatively coupled to at least one set top box, wherein a recommendation list and information corresponding to programs in the recommendation list are generated by the server and transmitted to the set top box.

However, Macrae teaches the information system residing on a remote server communicatively coupled to at least one set top box, wherein a recommendation list and

information corresponding to programs in the recommendation list are generated by the

server and transmitted to the set top box (see column 5, lines 19 – 21).

Regarding claim 36, Barrett does not explicitly teach a utility system operable to

monitor program selection information in the storage system and communicate aging

information to the memory loading system for aging out older program information

residing in the storage system in exchange for newer information.

Payton teaches a utility system operable to monitor program selection

information in the storage system (see column 8, lines 37 – 39).

Barrett or Payton does not teach communicate aging information to the memory

loading system for aging out older program information residing in the storage system in

exchange for newer information.

However, Macrae teaches communicate aging information to the memory loading

system for aging out older program information residing in the storage system in

exchange for newer information (see column 12, lines 41 – 50).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine teaching of Barrett and Payton with the teaching of

Macrae wherein old items are removed from the database to create space for new

items. The motivation is that the efficient management of the storage space is cost

effective when additional memory space is desired for new selections.

11. Claims 57, 58 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Macrae in view of Barrett in view of Payton and further in view Macrae.

Regarding claim 57, Macrae teaches a system that facilitates local storage space

utilization, comprising:

a component that logs information relating to historical access of items (see column

12, lines 21 – 48);

Macrae does not explicitly teach an inference component that employs the log

information in application of a utility-based analysis in connection with selectively storing

to and/or deleting items from a local storage space.

Barrett teaches an inference component that employs the log information in

application of a utility-based analysis in connection with selectively storing to and/or

deleting items from a local storage space (see column 4, lines 1 – 4).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to combine teaching of Barrett with the teaching of Macrae wherein

collaborative information is used to augment the viewer profile by inferring program

choices based on similarities with other users The motivation is that this inference is

used to predict what program a view might chose in the future.

Regarding claim 58, Macrae teaches the inference component dynamically

computes changing value densities across a subset of the items to at least one of:

repack, recompress, and replace old items with new items (see column 12, lines 45 –

65).

Regarding claim 61, Barrett teaches the items comprise media (see column 171, line

42).

12. Claims 59, 60, 62, 63, 64 and 65 are rejected under 35 U.S.C. 103(a) as being

   unpatentable over Macrae in view of Barrett and further in view of Payton.

Regarding claim 59, Macrae and Barrett disclosed the claimed subject matter as

discussed in claim 57. Macrae or Barrett does not explicitly teach the utility analysis

comprising computing a likelihood that an item will be accessed given certain evidence.

However, Payton teaches the utility analysis comprising computing a likelihood that

an item will be accessed given certain evidence (see column 6, lines 44 – 50).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to combine teaching of Payton with the teaching of Macrae and Barrett

wherein view habit of a user is monitored. The motivation is that this viewing habit can

be used to augment the user profile to improve prediction.

Regarding claim 60, Macrae teaches the utility analysis considers decay rates per

respective volatility of content relating to the subset of items (see column 12, lines 25 –

34).

Regarding claim 62, Payton teaches the items comprise electronic documents (see

column 2, lines 13 – 14).

Regarding claim 63, Payton teaches utility analysis comprising employment of

parametric functions to assess value of a respective item (see column 9, lines 14 – 48).

Regarding claim 64, Payton teaches a model of the probability an item will be

accessed (see column 6, lines 33 – 36).

Regarding claim 65, Payton teaches the modal is a statistical model (see column 9,

lines 41 – 43).

13. Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over Macrae in

view of Barrett in view of Payton and further in view Macrae.

Regarding claim 66, Payton teaches a system that facilitates memory utilization,

comprising:

means for storing logging information relating to historical access of items (see

column 2, line 67 through column 3, lines 1 - 2); and

means for appointing respective values to a subset of the items based on access

thereof (see column 6, lines 29 – 40); and

Payton does not explicitly teach means for applying the values in a value

density-based utility analysis in connection with at least one of: replacement, retention,

and compression of the subset of items to a memory.

Macrae teaches means for applying the values in a value density-based utility

analysis in connection with at least one of: replacement, retention, and compression of

the subset of items to a memory (see column 12, lines 59 – 67 and column 13 lines1 –

24).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine teaching of Macrae with the teaching of Payton wherein

the assigned value determines which item is added, retained or replaced in the

database. The motivation is that items with low rating are replaced to create memory

space for new items.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred I. Ehichioya whose telephone number is 703-305-8039. The examiner can normally be reached on M - F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kim Y. Vu can be reached on 703-305-4393. The fax phone numbers for

the organization where this application or proceeding is assigned are 703-746-7239 for

regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is 703-303-

3900.

Fred Ehichioya
November 28, 2003

SHAHID ALAM
PRIMARY EXAMINER